MANAGEMENT SCIENCES *for* HEALTH

MSH

RPM Plus | Rational Pharmaceutical Management Plus

Computerized Drug Supply Management Information System

Presented by Gavin Steel and Jean-Pierre Sallet

HMIS Meeting - Centurion Lake Hotel

November 2005

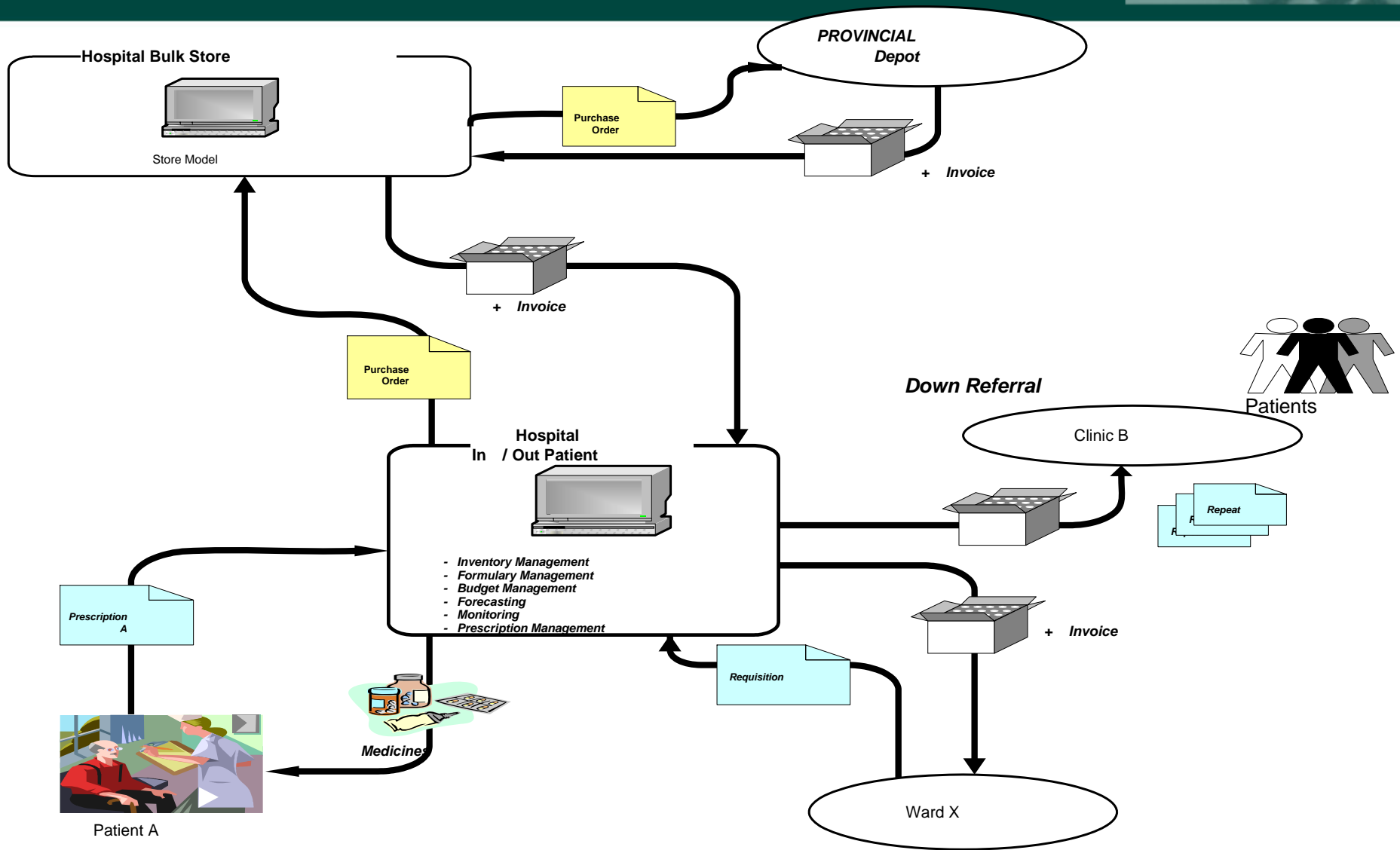# RxSolution – Drug Supply Management Information System

- Focus on Institution Levels (Hospital, District, CHC,…)

- Support Inventory, Procurement, Distribution, Prescribing and Dispensing Practices Management for all Essential Drugs and other related commodities

- Cost All Transactions and Monitor Expenses Vs. Allocated Budget

- Automated Reorder Level and Forecasting

- Assist with the Drug Use Monitoring

- Provide Information to Management ("Blessed by NHISSA")

Hospital Bulk Store

Store Model

PROVINCIAL Depot

Purchase Order

+ *Invoice*

+ *Invoice*

Purchase Order

Hospital In / Out Patient

- *Inventory Management*
- *Formulary Management*
- *Budget Management*
- *Forecasting*
- *Monitoring*
- *Prescription Management*

Down Referral

Patients

Clinic B

Repeat

Prescription A

Medicines

Requisition

+ *Invoice*

Patient A

Ward X

RxSolution – Inventory & Dispensing Management

WHO
"*8 Dispensing Steps*"

- Receive Prescription
- Interpret Prescription
- Retrieve Medication
- Prepare and Process
- Communicate with Patient
- Assure Patient's Understanding
- Monitor Compliance by Patient
- Records

Prescriber & Dispenser Management

- ~ ID's
- ~ Level & Academic Qualifications
- ~ Signature & Photograph(s)
- ~ Special authorizations
- ~ Clinical rotations
- ~ Contacts
    - – Addresses
    - – Telephone and Cell
    - – Wards & offices
    - – Email

Xoliswa Jonas - (C0006) RX Level = [4]

Prescriber Level

4

Personal Information

Last Name	Jonas	
First Name(s)	Xoliswa	
Initials	X	Title Dr ▼
RxLevel	4 ▼	Number C0006

Specialisation	N/A ▼
HPCSA #	<Not Yet Supplied>
Staff #	<Not Yet Supplied>
Post	Consultant ▼

Clinical Rotation Profile

✂ Cut   📄 Copy   📋 Paste

Complex Prescriber Posts Held

Number	C0006
Period Start	2005/04/29 ▼
Period End	2006/04/29 ▼

Get New Prescriber Number

RxLevel 4 ▼

Post Consultant ▼

Description	Active
Post [Consultant] From (29/04/05) Until (29/04/06) Current	✔

➕ ➖ ✓ ✗ ↻

Clinical Rotation Information

Department	[RUS] ARV ▼
Start	2005/04/29 ▼	End	2005/04/29 ▼

Post Rotation History

Rotation
Dept. [[RUS] ARV] From (29/04/05) Until (29/04/05)

➕ ➖ ✓ ✗ ↻

| Clinical Rotation Profile | Contact Details | Academic Qualifications | Photo & Signature | Comments |

✔ OK   ✗ Cancel

Patient Management

- In addition to standard ID & Personal Info
    - ~ Allergies
    - ~ Anthropometries
    - ~ Pregnancy
    - ~ Renal Function
    - ~ Medication profile
    - ~ Counseling Visit(s)

File   Edit   View   Gene

Exit   Log Of   ers   Patients   Prescriptions

Patient - Jimmy SMITH

Jimmy SMITH - 1676

Personal Information

| Last Name | SMITH | Number | 1676 | Date of Birth | 16/07/1980 ▼ |

| First Name | Jimmy | | | Gender | ● Male   ○ Female |

| Known Name | John Doe | | | Deceased | ▼ |

| ID Number | 17028977987987 | | | Status | **Active** ▼ |

Contact

＋   －   ✓   ✕   ↻   ✂ Cut   ⧉ Copy   📋 Paste   🖨 Print

Contact Details

Mode:	Address ▼	Street:	5, Helm Street
Type:	Home ▼	Suburb:	Jacksonville
Note:		City:	Gotha City
		Code:	02456

Contact Details

Mode	Type	Contact	Description
Address	**Home**	**5, Helm Street, Jacksonville, Gotha City, 02456**	
Cell Phone	**Personal**	**0834489999**	

Contact   Prescriptions   Anthropometries   Allergies   Detail   Counselling

✓ OK

Drag a column header her

No	L		▼	Age	▼
1345	M
211	S
1504	M
1331	M
690	T
93	M
309	M
923	M
1205	M
1672	T
159	R
1067	M
1131	M
1669	N
924	R
1265	M
1239	N
1379	S
1282	M
1654	E
298	R
1676	S

Add...   Edit...   Delete   Print

🏁 **start**   📁 C:\Documents a...   📧 RPM Plus - MPjp...   🔖 RxSolution 2005   🔖 Patient - Jimmy ...   📄 Document1 - Mi...   **39%**   12:09 AM

Prescribing and Dispensing Management

- All the basic data elements for clinical review (e.g. trade vs generic, indication/ICD10)

- Protocol, Standard Dose or Manual based prescribing

- Anthropometric assisted (e.g. Paediatrics, Oncology)

- Prescriber & Dispenser level – Off, warning or limit

- Intuitive Dispensing: system recommend best pack size based on regimen, available formulation, route and cost

- Patient Leaflet and Counseling

File   Edit   View   General   Store   Dispensing   Tools   Help

| Exit | Log Off | Home Page | Products | Demanders | » | Requisitions | Orders | Receipts | Prescribers | Dispensers | Patients | Prescriptions |

Protocols

| Add | Save | Cancel | Refresh | Delete |

Protocol List

ARV Regimen 1a 30/400
ARV Regimen 1a 30/600
ARV Regimen 1a 40/600
ARV Regimen 1b 30
ARV Regimen 1b 40
ARV Regimen 1b start 30
ARV Regimen 1b start 40
ARV Regimen 1c AZT 300/NVP start
ARV Regimen 1c AZT300/EFV400
ARV Regimen 1c AZT300/EFV600
ARV Regimen 1c AZT300/NVP
ARV Regimen 1d 40
ARV Regimen 1d AZT 300
ARV Regimen 1d 30
ARV Regimen 2 AZT300/ddI250
ARV Regimen 2 AZT300/ddI 400
Paeds ARV Regimen 1a
PEP A 11 day
PEP A 14 day
PEP A 25 day
PEP A 03 day
PEP B 11 day
PEP B 14 day
PEP B 25 day
PEP B 03 day

Protocol Detail

1c AZT300/EF'ARV Regimen 1c AZT300/EFV400

Code	Name
1c AZT300/EFV40(	ARV Regimen 1c AZT300/EFV400
Indication	HUMAN IMMUNODEFICIENCY VIRUS (HIV) DISEASE

Detail

| Add... | Save | Cancel | Refresh | Delete |

Regimen

Description
Efavirenz 400mg nocte PO for 28 days
Lamivudine 150mg 12h PO for 28 days
Zidovudine 300mg 12h PO for 28 days

Regimen Detail

Generic	Efavirenz
Eccentric	☐ is dosing eccentric?
Dose	400
Unit	mg
Interval	nocte
Route	PO
Duration	28
Dosing	○ M² per day ● Kg per day
Daily Amt	400 mg

Regimen   Evidence

Dispense Item...

Prescription : Efavirenz 600mg nocte PO for 28 day(s) repeats [1]

Dispense ...

Efavirenz (Stocrin) 600mg [30 x Capsule]

Field	Value	
Intuitive	☑ (system dispenses for me)	
Generic name	Efavirenz	
Dose per Unit	600 mg	1
Interval	nocte	
Duration	28 **Days**	
Route	PO	
Repeat	1	

Calc. Qty	Act. Qty	Units
28	**30**	Capsule

Req. Packs	Break Pck?	Total Cost
1	☐	R 206.48

Dosing Instructions ☑ Auto

Take 1 capsule at night

Abb	Additional instructions
▼	▼

Label Warnings

Available Products

Pack	Units	Pack Cost
Efavirenz (Stocrin) 50mg (Capsule) [30 x Capsule]	0	R 25.75
Efavirenz (Stocrin) 600mg [30 x Capsule]	0	R 206.48
Efavirenz (Stocrin) 200mg [90 x Capsule]	0	R 310.07

Label

Efavirenz (Stocrin) 600mg [x 30]

Take 1 capsule at night

SMITH, John Doe (Jimmy)

Rx # : FP/05090007

Rustenburg Hospital -[03/09/2005]

Dispensing (1.0 pack of Efavirenz (Stocrin) 600mg [30 x Capsule] @ a total cost of R 206.48)

✔ OK   ✘ Cancel

start | C:\Docume... | RPM Plus - ... | RxSolution ... | frmPrescrip... | Dispense It... | Document1... | 35% | 12:15 AM

Down Referral

- Patient Driven

- Automatic Scheduling

- Pick list

- Monitoring

- Cost

CMH-P/04-07-0042-6Maria Broeksma

CMH-P/04-07-0042-6Maria Broeksma

Prescription Details

Number	CMH-P/04-07-0042-6
Prescriber	M055
	Bamford, Fiona
Dispenser	F0002
	Postma-Botha, Marthie

Rx Level: 3

Rx Level: 3

Patient Information

Date	Thu 02 December 2004
Patient	22993273
	Broeksma, Maria
PHC Clinic	Kennersley Park
Status	

Prescription | Dispensing | Prescriber | Dispenser | Patient | Down Referal

Referal [Do repeats]

Date	Referred	No.	Status	PHC	Repeat	Dispensed	Collected
2004/07/15 10:	☑	CMH-P/04-07-0042		Kennersley Park	1	☐	☐
2004/08/12	☑	CMH-P/04-07-0042-2		Kennersley Park	2	☐	☐
2004/09/09	☑	CMH-P/04-07-0042-3		Kennersley Park	3	☐	☐
2004/10/07	☑	CMH-P/04-07-0042-4		Kennersley Park	4	☐	☐
2004/11/04	☑	CMH-P/04-07-0042-5		Kennersley Park	5	☐	☐
2004/12/02	☑	CMH-P/04-07-0042-6		Kennersley Park	6	☐	☐

Prescription Cost

Cost	R 0.00

✔ OK   ✗ Cancel

start | Rx Dispensing | 5 Microsoft P... | Microsoft Power... | JP | 99% | 01:49 AM

Prescription Information System

- Prescriber Recommendation

- Modification of Prescription

- Tracking of Modification

- Professional Activity Monitor

- Provides Details about Rational Drug Use Interventions

RxSolution 2005 [1.0.1.40] (ADO[?.?])

File   Edit   View   General   Store   Dispensing   Tools   Help

frmPrescriptionDetail_

FP/05090007 - SMITH, John Doe (Jimmy)

Prescription Details

Prescription Details		Prescription Details	
Number	FP/05090007	Prescriber	A08 ▼ CASSIM, Farhana
Script Origin	[RUS] ARV ▼		
Date	02/09/2005 ▼	Dispenser	A14 ▼ COMBRINK, Cem
Status	Active - Script being processed...		

Patient Details

Patient Details	Patient Status

Personal Details

ID Number	17028977987987
Last Name	SMITH
First Name	Jimmy
Known Name	John Doe
Date of Birth	10/08/1980 ▼

Allergies

Description

Test allergy [Test Only]

History

Patient Data

Weight
CD4 Count

80
78
76
74
72
70
68
66

2005 Mar 09
2005 May 03
2005 Jun 01
2005 Jul 21

Graph   Ledger

Prescription [F10]   Dispensing [F11]   Patient [F12]

Prescription Cost   R 263.33

✔ OK

🔳 start   📁 C:\Documents and S...   📗 RPM Plus - MPjp - Se...   🧪 RxSolution 2005   ▢ frmPrescriptionDetail_   **22%**   12:39 AM
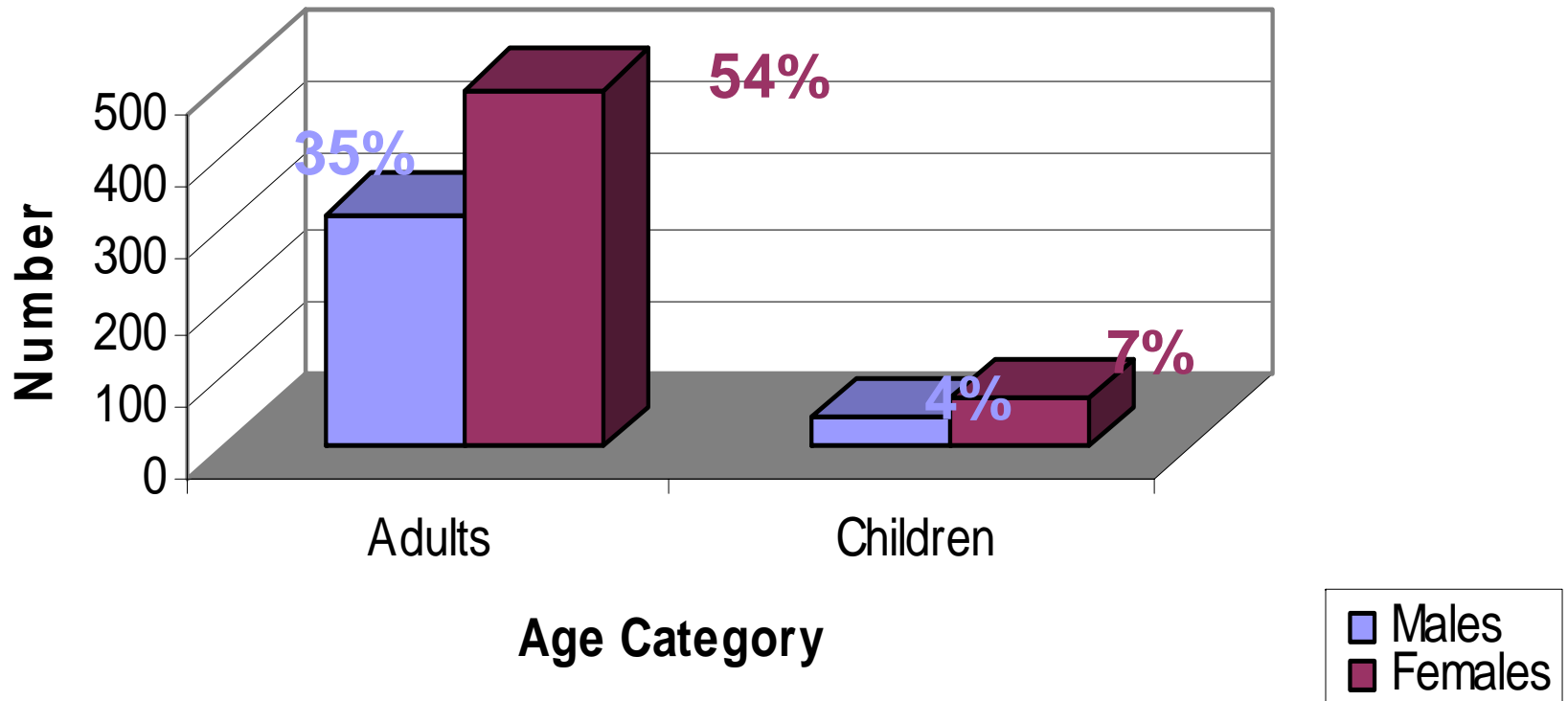
Other Management Utilities

- Adherence Monitoring
- Adverse Drug Event (ADE) reporting
- Medication error reporting
- Drug utilization review
  - ~ Criteria development
  - ~ Implementation

- Standalone Reporting facilities (incl. PEPFAR reporting requirements)
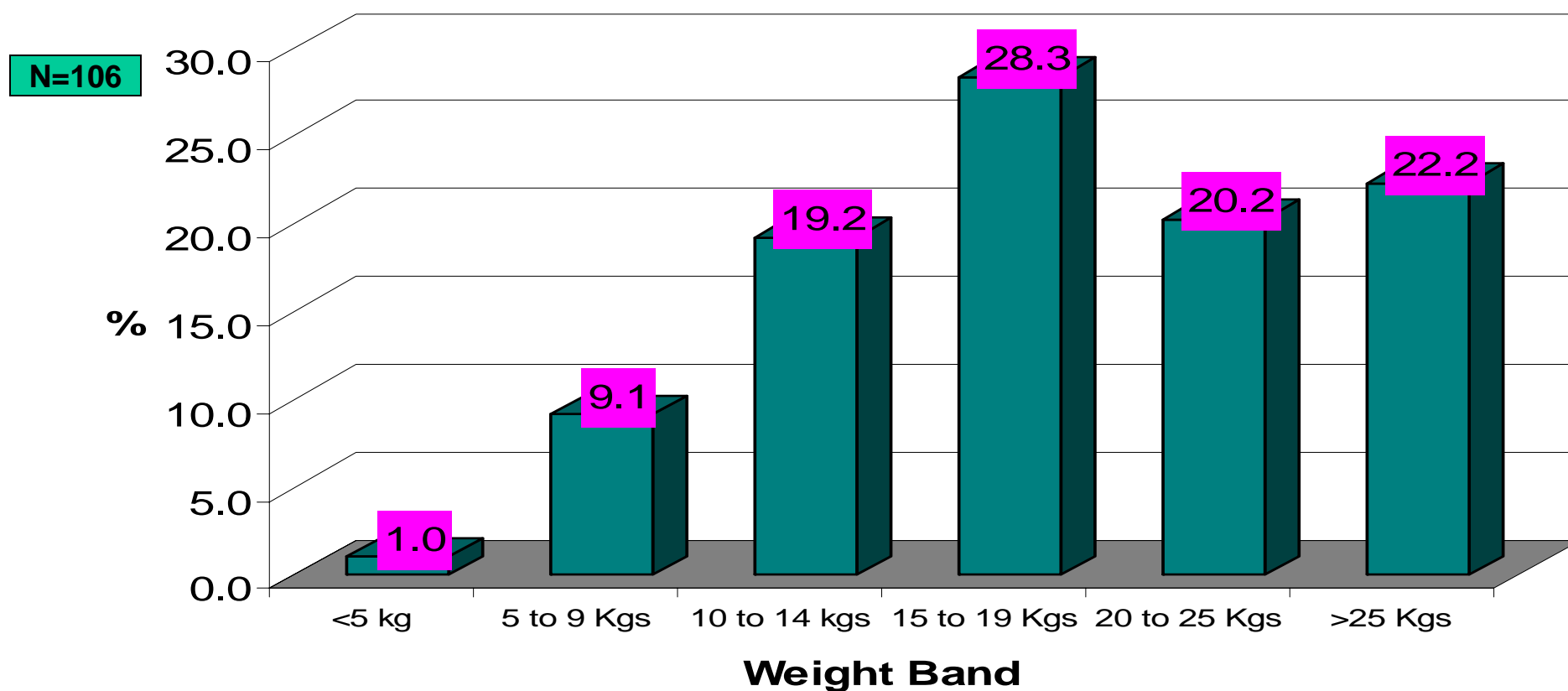
- Over 100 management reports available

Patient Characteristics
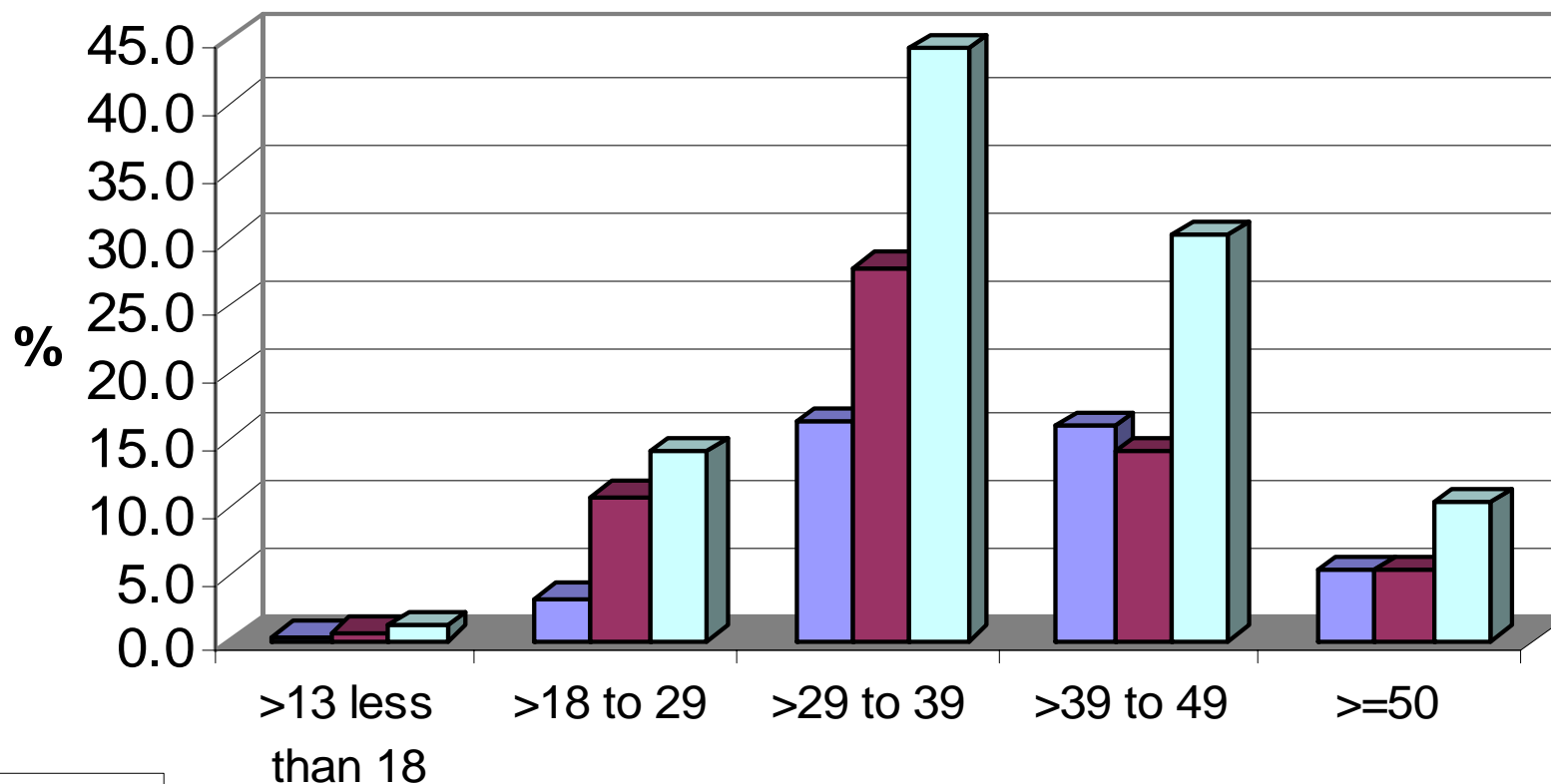

Proportion of Adults & Children Receiving ARV Drugs

N=919
Adults=813
Children=106

Males
Females

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Patient Characteristics (2)

Weight Distribution of Pediatric Patients at Start of ART

N=106

Weight Band	%
<5 kg	1.0
5 to 9 Kgs	9.1
10 to 14 kgs	19.2
15 to 19 Kgs	28.3
20 to 25 Kgs	20.2
>25 Kgs	22.2

Weight Band

Patient Characteristics (3)

Age Distribution at Start of ART: Adults

Legend: Males, Females, Total

Age categories: >13 less than 18, >18 to 29, >29 to 39, >39 to 49, >=50

Age Category

N=712 (excludes adults on PEP)

Program Characteristics

Number of New Patients Per Month: Adult ART

N=712 (excludes adults on PEP)

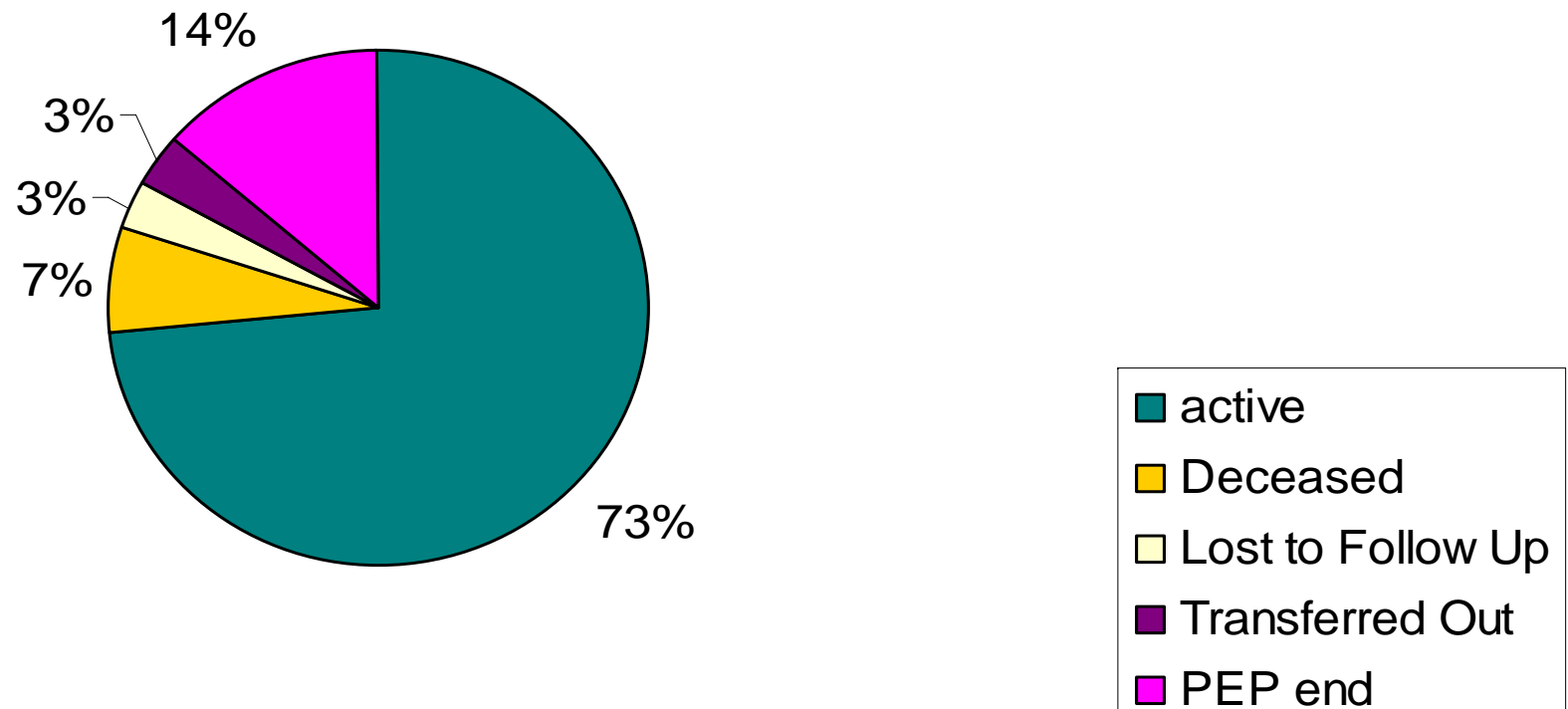Legend: Males, Females, Total
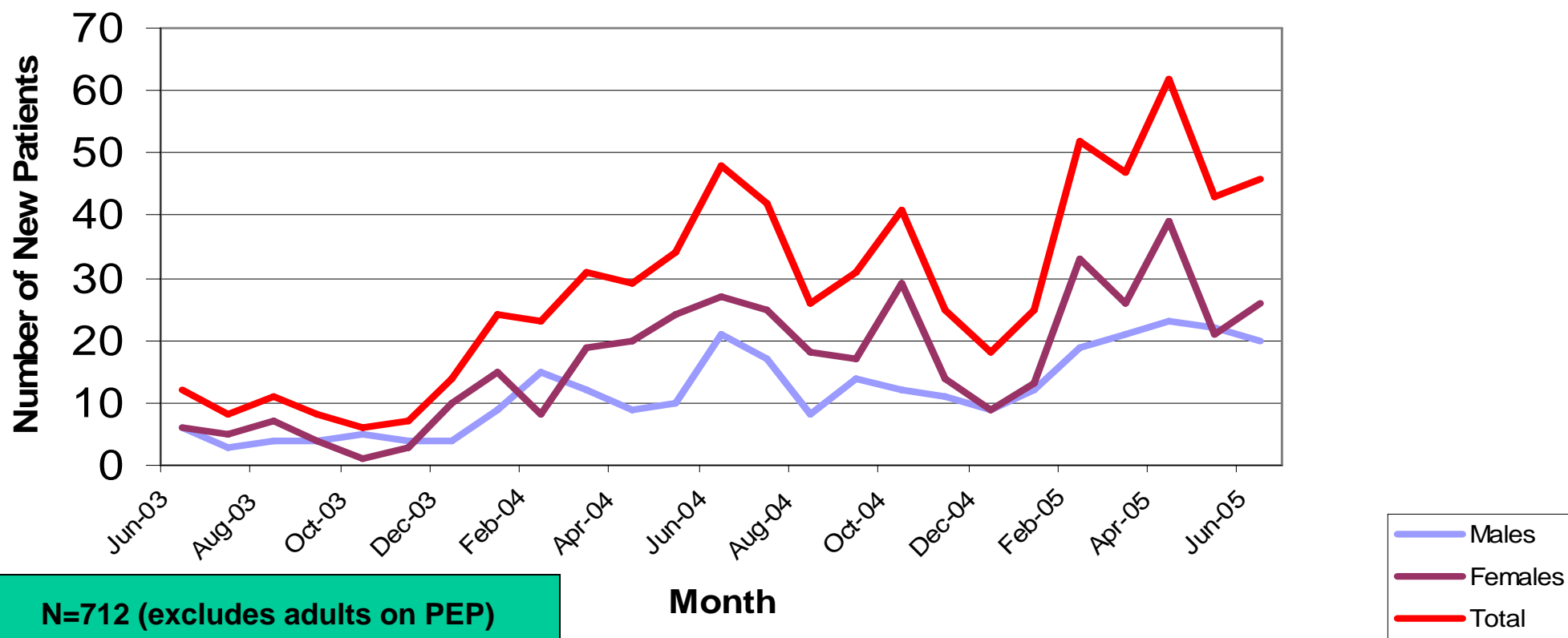
Program Characteristics (2)

Current Status of all Patients Receiving ARV Drugs Between June 2003 and June 2005

N=919

14%

3%

3%

7%

73%

- active
- Deceased
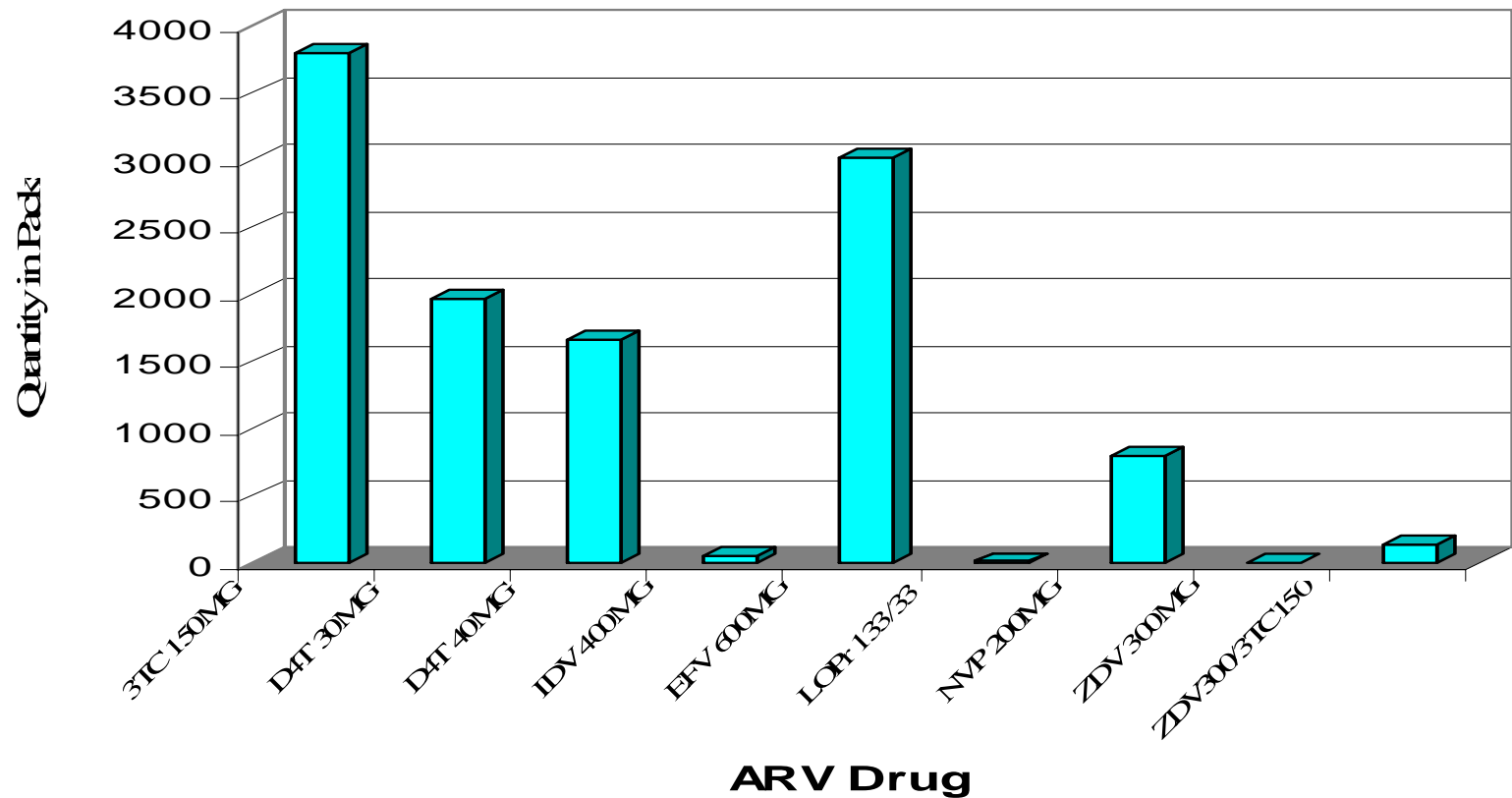- Lost to Follow Up
- Transferred Out
- PEP end

Regimens Dispensed

Starting Regimen Dispensed for Adult ART (N=710)
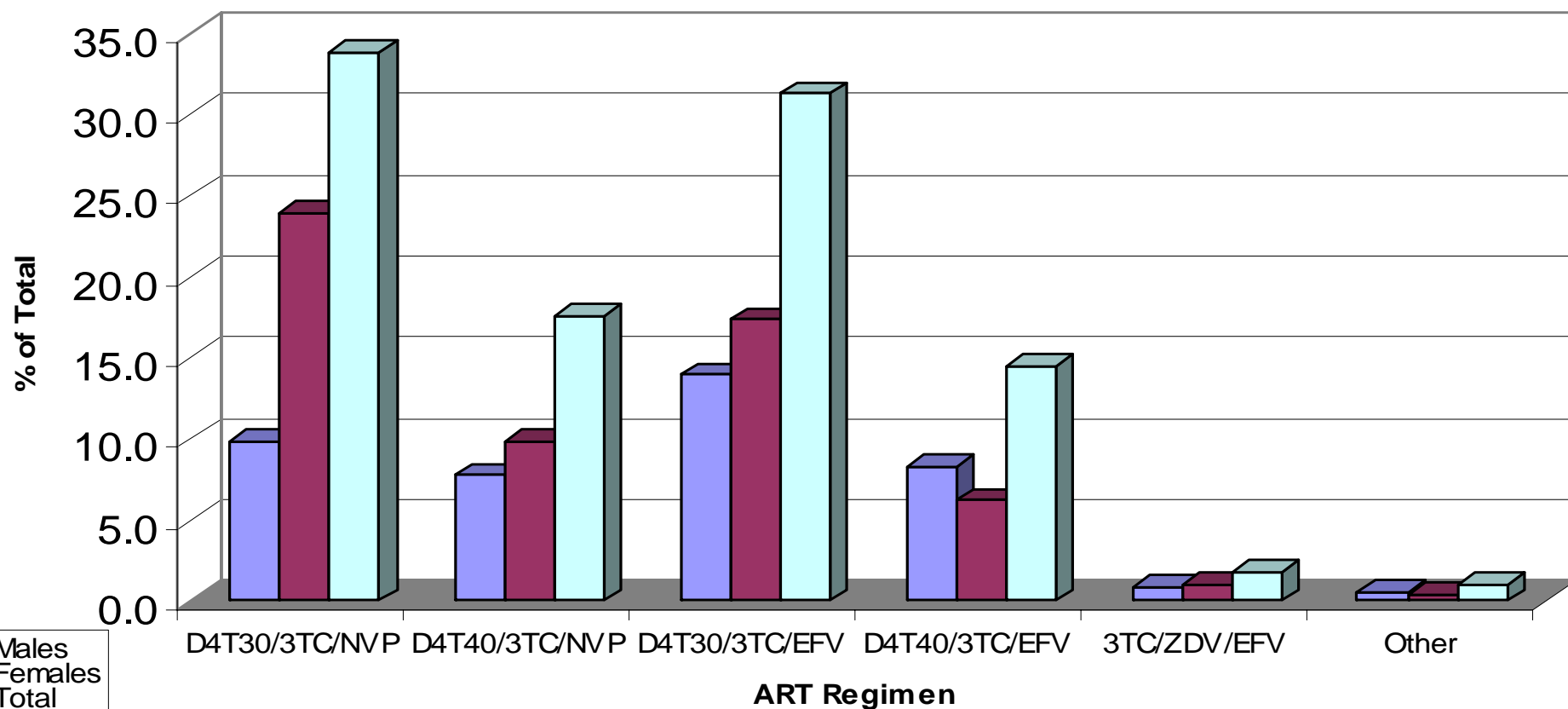
ARV Drug Consumption

Total Consumption of Adult Dosage Forms from June '03 to June '05

Quantity in Pack (y-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000)

ARV Drug (x-axis: 3TC 150MG, D4T 30MG, D4T 40MG, IDV 400MG, EFV 600MG, LOP: 133/33, NVP 200MG, ZDV 300MG, ZDV300/3TC150)

RxSolution – The Way Forward

- Expand number of Sites in two additional Provinces (currently installed at 30 SA Government sites in 3 provinces)

- Enter into Agreement with IS Service Provider for support and maintenance

- Include National Standard Treatment Guidelines

- Link with other systems (e.g. Patient Record and Provincial Pharmaceutical Depot systems)

- Test with ORACLE database (current version use MS SQL)

For more information….

- Jean-Pierre Sallet
  - ~ jpsallet@msh.org
  - ~ 083 440 7283

- Gavin Steel
  - ~ gsteel@msh.org
  - ~ 083 276 7460